RFQ Q2016-00194: SILT FENCE

TECHNICAL SPECIFICATIONS

General Conditions:

1. Erosion/sediment control shall be used during roadway and other miscellaneous projects being conducted by Lake County. All work in conjunction with this quote shall be coordinated by the Project Manager or designated representative. All erosion/sediment control operations shall include but not be limited to the materials and the labor for installation.
2. All work shall comply with the Florida Department of Environmental Protection Nonpoint Source Management and Water Quality Standards as stated in "The Florida Storm Water, Erosion, and Sedimentation Control Inspector's Manual", State of Florida DOT Roadway and Traffic Design Standards, and the 2015 Florida DOT Standard Specifications for Road and Bridge Construction Standards or any more recently released revisions. If at any time there is a discrepancy between any of these specifications and the specifications listed herein, the specification that is more stringent shall take precedence.

SILT FENCE

Silt fence is described as temporary sediment barrier consisting of a filter fabric stretched across and attached to supporting posts and entrenched into the soil. The Contractor shall install new fence and it shall become the property of Lake County.

Physical Requirements:

1. The geotextile fabric shall be a woven or non-woven fabric that shall be permeable to water while retaining sediment. It shall consist of long chain polymeric filaments or yarns such as polypropylene, polyethylene, polyester, polyamides or polyvinylidene chloride formed into a stable network such that the filaments or yarns retain their relative position to each other.
2. The fabric shall contain stabilizers and/or inhibitors to make the filaments non-biodegradable, inert to most soil chemicals, ultraviolet resistant, heat exposure, and unaffected by moisture or other weather conditions.
3. The fabric shall conform to the physical requirements of the Florida Department of Transportation Design Standards, Index No. 199 and Index No. 102, and the Florida Department of Transportation Section No. 985.
4. The filter fabric shall be supplied in rolls a minimum of 36 inches wide.
5. The fabric shall be consistent with the following table when sampled and tested:

Type Fence	C
Minimum Tensile Strength, pounds (Newtons) (1)	Warp-260 (1155) Fill-180 (800)
Elongation (% Max)	40
Apparent Opening Size (Max. Sieve Size)	No. 30 (600 urn)
Flow Rate, Gal/Min./Ft^2 (L/min./m^2)	70 (2850)
Ultraviolet Stability (2)	80
Bursting Strength, PSI (kPa)	175 (1200)
Minimum Fabric Width	36 in (900 mm)
1. Minimum roll average of five specimens. 2. Percent of required initial minimum tensile strength.	

TRENCHING

Trenching for installation of silt fence shall be the same for both types and shall be done by either of the following methods:

1. Excavated Trench Method – Machine/Hand Trenching Method, excavate a trench eight (8) inches deep using equipment such as but not limited to, a trenching machine, motor grader, or shovel. There may be areas that will not facilitate the use of mechanical excavation. If equipment cannot be operated on the site, excavate the trench by hand shall be required.
2. Soil Slicing Method – Create a mechanical slice in the soil eight (8) to twelve (12) inches deep to receive the silt fence. Ensure that the width of the slice is not more than 3 inches.

SUPPORT POSTS

1. Post for Type C shall be made from 1" x 2" hardwood or metal with a 1.3 pounds per foot minimum.
2. Post shall be set on a slight angle toward the anticipated runoff source.
3. Installation of the first post shall be at the center of the low point (if applicable). Type C posts shall be positioned at a distance not to exceed six (6) feet on center for the entire length of the silt fence.
4. The posts shall be buried at least eighteen (18) inches into the ground. If the depth cannot be attained, the posts shall be secured to prevent the fence from overturning from a sediment load.
5. The posts shall be installed on the downward side if installed on a slope. The posts shall be installed on the outside of the excavated area when installed on a level site.

FABRIC INSTALLATION

1. The fabric shall be installed in the trench so that six (6) inches of the fabric is against the side of the trench with two (2) inches of fabric across the bottom in the upstream direction when installed in a machine/hand trench.

2. The silt fence fabric shall be mechanically inserted into the slice in a simultaneous operation with the slicing that ensures consistent depth and placement, when using the soil slicing method.
3. The trench shall be backfilled and compacted to the existing grade.
4. When the silt fence is constructed on impervious material, a twelve (12) inch flap of fabric shall be extended upstream from the bottom of the silt fence and weighted to limit particulate loss. Vertical joints shall be overlapped a minimum of twelve (12) inches with the ends sewn or otherwise securely tied.

FABRIC ATTACHMENT

The filter fabric shall be connected to the post using staples, hog rings, wire, or pockets and shall be completed using one of the following methods:

1. Staples shall be evenly spaced one (1) inch wide crown staples with at least five per post on wooden Type C posts.
2. Hog rings or wire ties shall be used for Type C metal posts.
3. When using pockets and they are not closed at the top, the fabric shall be attached to a wood post using a least one additional staple or nail, or wire when attaching to a steel post. The additional attachment shall be within the top six (6) inches of the fabric.
4. The filter fabric shall be installed so that six (6) inches of the fabric is left at the bottom to be buried.
5. The filter fabric shall be attached to the top of a woven wire support fence at the midpoint between posts for Type C fences.

SPLICING

1. When attaching two fences together, place the end post of the second fence inside the end post of the first fence. Rotate both post at least 180 degrees on a clockwise direction to create a tight seal with the filter fabric. Drive both posts into the ground and bury the flap.
2. No horizontal joints shall be allowed in the filter fabric.

BACKFILLING

1. Backfill and compact, to grade, the trench to ensure that flow cannot pass under the barrier. When the slice method is used, compact the soil disturbed by the slice on the upstream side of the silt fence first, and then compact the downstream side. Trench shall be backfilled to original grade, leaving a minimum of six (6) inches of fabric below finish grade.
2. When installing a silt fence across a waterway that produces significant runoff, place a settling basin in front of the fence to handle the sediment load, if required. Construct a suitable sump hole or storage area according to FDOT Index Section 163.